

## **Curriculum Vitae**

### **PROF. GAUTAM R. DESIRAJU**

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**Born** 21 August 1952, in Madras

#### **Education**

B.Sc.	St. Xavier's College, University of Bombay	1972
M.S.	University of Illinois, Urbana	1974
Ph.D.	University of Illinois, Urbana	1976

<b>Research interests</b>	Organic chemistry, Crystal engineering Supramolecular chemistry, Drug design Pharmaceutical development, formulation Molecular modelling, crystallography
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#### **Positions held**

Research Scientist	Eastman Kodak, Rochester	1976-1978
Research Fellow	Indian Institute of Science, Bangalore	1978-1979
Lecturer	University of Hyderabad	1979-1984
Reader	University of Hyderabad	1984-1990
Visiting Scientist	Dupont CR&D, Wilmington	1988-1989
Professor	University of Hyderabad	1990-
Dean	University of Hyderabad	1999-2002

#### **Publications**

2 books, 3 edited books and more than 275 research papers

- (1) Crystal Engineering. The Design of Organic Solids, Elsevier, 1989.
- (2) The Weak Hydrogen Bond, Oxford University Press, 1999 (with T. Steiner).

## **Honours and distinctions**

1. Fellow, Indian Academy of Sciences, 1993.
2. Fellow, Indian National Science Academy, 2000.
3. Fellow, The National Academy of Sciences, India, 2000.
4. Fellow, Third World Academy of Sciences, 2002.
5. Fellow, Andhra Pradesh Akademi of Sciences, 1995.
6. Alexander von Humboldt Research Award, 2000.
7. Third World Academy of Sciences (TWAS) Award, 2000.
8. Ranbaxy Award for Pharmaceutical Sciences, 2000.
9. Millenium Medal of the Indian Science Congress, 2000.
10. Silver Medal for excellence of the Chemical Research Society of India, 2000.
11. CHEMITO Award, 1999.
12. Prof. Priyadarajan Ray Memorial Award (Indian Chemical Society), 2000.
13. Dr. K. Anji Reddy Innovator of the Year Award (Indian Institute of Chemical Engineers), 2002.
14. Erskine Professor, University of Canterbury, Christchurch, New Zealand, 1990.
15. Visiting Professor, University of Strasbourg, Strasbourg, France, 1997.
16. Michael Visiting Professor, Weizmann Institute of Science, Israel, 2002.
17. Senior Visiting Fellow, Institute of Advanced Study, University of Bologna, Italy, 2003
18. J. C. Bose Fellowship, Department of Science and Technology, 2006.
19. Honorary Member, Hungarian Chemical Society, 2006.

## **Selected committee memberships**

1. Executive Committee, International Union of Crystallography.
2. Bookseries Committee, International Union of Crystallography.
3. Council, Indian National Science Academy.
4. Research Council, Regional Research Laboratory, Thiruvananthapuram.
5. Management Board, National Centre for Biological Research, Bangalore.
6. Research Council, National Institute for Pharmaceutical Education and Research, Chandigarh.
7. Board of Governors, Indian Institute of Science Education and Research, Kolkata.

## **Selected former committee memberships**

1. Research Council, National Chemical Laboratory, Pune.
2. Research Council, Indian Institute of Chemical Biology, Kolkata.
3. Chairman, Program Advisory Committee for Organic Chemistry, Department of Science and Technology, New Delhi.
4. Appellate Authority, Andhra Pradesh Pollution Control Board, Hyderabad.
5. National Millenium Initiative for Technology Leadership Initiatives, High Power Committee, Council of Scientific and Industrial Research, New Delhi.

## **Current and former editorial boards and editorial advisory boards**

1. Accounts of Chemical Research (American Chemical Society).
2. Chemistry. An Asian Journal (Wiley-VCH).
3. Acta Crystallographica (International Union of Crystallography)
4. Crystal Growth and Design (American Chemical Society)
5. CrystEngComm (Royal Society of Chemistry).
6. Journal of Chemical Sciences (Indian Academy of Sciences).
7. Journal of Chemical Crystallography (Kluwer).
8. Encyclopedia of Supramolecular Chemistry (Marcel Dekker)
9. Current Opinion in Solid State and Materials Science (subject editor)
10. Perspectives in Supramolecular Chemistry (Wiley).
11. Chemical Communications (Royal Society of Chemistry)
12. Topics in Stereochemistry (Wiley).

## **Selected plenary and keynote lectures**

1. 10th International Conference of the Chemistry of the Organic Solid State, Vancouver, Canada, 1991.
2. British Crystallographic Association Spring Meeting (keynote) Manchester, England, 1993.
3. Computational Methods in Chemical Design. Theory and Experiment (CMCD 4) Kloster Irsee, Germany, 1994.
4. Symposium on Organic Crystal Chemistry, Adam Mickiewicz University Poznan-Rydzyna, Poland, 1994.
5. NATO-ARW workshop on Crystals as Supramolecular Materials, Sestre Levante, Italy, 1995.
6. 2nd Meeting of the Asian Crystallographic Association (keynote) Bangkok, Thailand, 1995.
7. NATO-ARW workshop on Self Assembly in Synthetic Chemistry, Val Morin, Québec, Canada, 1996.
8. Summer School on Supramolecular Chemistry Ustrón, Poland, 1996.
9. International Union of Crystallography XVII Congress (keynote) Seattle, U.S.A., 1996.
10. XIIIth International Symposium on the Reactivity of Solids (keynote) Hamburg, Germany, 1996.
11. NATO-ASI school on Crystal Engineering, Digby, Nova Scotia, Canada, 1996.
12. Analysis and Design of Solid State Reactions, Tokyo Institute of Technology Tokyo, Japan, 1996.
13. 36th IUPAC Congress (keynote) Geneva, Switzerland, 1997.
14. NATO-ARW on Large Supramolecular Assemblies Athens, Greece, 1997.

15. NATO-ARW on Molecular Magnets and Conductors  
Barcelona, Spain 1998.
16. Royal Society of Chemistry Annual Congress (Symposium on Polymorphism)  
Durham, England 1998.
17. International School of Crystallography and NATO-ARW  
Implications of Molecular and Materials Structure for New Technologies  
Ettore Majorana Centre for Scientific Culture  
Erice, Sicily, Italy, 1998.
18. American Crystallographic Association Annual Meeting  
(Invited speaker in the symposium to commemorate the 50th anniversary of the  
International Union of Crystallography)  
Arlington, VA, U.S.A., 1998.
19. Design and Assembly of Molecules and Networks: New Forms and Functions  
Cursos de Verano Universidad Complutense  
San Lorenzo de el Escorial, Spain, 1998.
20. Gordon Conference on Physical Organic Chemistry  
Fukuoka, Japan, 1998.
21. 16th International CODATA Conference  
New Delhi, India, 1998.
22. Sonderforschungsbericht programme in Supramolecular Chemistry  
(Universities of Essen and Bochum)  
Essen, Germany, 1998.
23. International School of Crystallography and Euroconference  
Crystal Engineering: From Molecules and Crystals to Materials  
Ettore Majorana Centre for Scientific Culture  
Erice, Sicily, Italy, 1999.
24. International School of Crystallography  
Data Mining in Crystallography  
Ettore Majorana Centre for Scientific Culture  
Erice, Sicily, Italy, 1999.
25. Drug Design and Small-molecule Crystallography  
Technical University of Łódz,  
Łódz, Poland, 1999.
26. Royal Society of Chemistry Symposium on Crystal Engineering and  
Supramolecular Chemistry (keynote)  
London, England, 1999.
27. Foundation Day Lecture  
National Institute of Immunology  
New Delhi, 2001.
28. Indian Association for the Cultivation of Science, 125<sup>th</sup> anniversary lecture  
IACS, Kolkata, 2001.
29. Department of Atomic Energy-C.V. Raman Lectureship  
Institute of Science and St. Xavier's College, Mumbai, 2001.
30. American Chemical Society Annual Meeting (keynote)

Orlando, Florida, 2002

- 31. American Crystallographic Association Annual Meeting (keynote)  
San Antonio, Texas, 2002.
- 32. Third World Academy of Sciences Annual Meeting (award lecture)  
New Delhi, 2002.
- 33. Prof. Priyadarshan Ray Memorial Award Lecture (Indian Chemical Society)  
Nagarjuna University, Guntur, 2002.
- 34. Foundation Day Lecture  
Institute of Microbial Technology  
Chandigarh, 2003.
- 35. American Chemical Society ProSpectives Series on Polymorphism  
Tampa, Florida, 2003.
- 36. Foundation Day Lecture  
Central Salt and Marine Chemicals Research Institute  
Bhavnagar, 2003.
- 37. European Crystallographic Meeting  
Durban, 2003.
- 38. American Chemical Society ProSpectives Series on Polymorphism  
Tampa, Florida, 2004.
- 39. Scientific Update conference on polymorphism  
New Orleans, 2004.
- 40. American Crystallographic Association  
Orlando, Florida, 2005
- 41. Singapore International Chemists Conference (SICC-4)  
Singapore, 2005 (plenary).

### Summary

Gautam R. Desiraju (b. 1952 in Madras) studied chemistry at the Universities of Bombay and Illinois. He has been at the University of Hyderabad since 1979 and has made seminal contributions to the growth and development of the subject of crystal engineering, with particular reference to the properties of the weak hydrogen bond and the use of logic based retrosynthesis with supramolecular synthons. He has written more than 275 scientific papers and is the author of the definitive work *Crystal Engineering. The Design of Organic Solids* (Elsevier, 1989) and *The Weak Hydrogen Bond in Structural Chemistry and Biology* (with T. Steiner, OUP, 1999). He has lectured widely and is a recipient of the Alexander von Humboldt Forschungspreis (2000). He has been a Michael Visiting Professor in the Weizmann Institute of Science (2002), a holder of a Short Term Visiting Fellowship of the Japan Society for the Promotion of Science (2003) and a Senior Visiting Fellow in the Institute of Advanced Study, University of Bologna (2003). He is presently a member of the Executive Committee of the International Union of Crystallography. He is a consulting editor for *Accounts of Chemical Research*, a co-editor of *Acta Crystallographica*, and is on the editorial advisory boards of a large number of journals, including most recently *Chemistry—An Asian Journal*.

## Publication List for Guatam R. Desiraju

### BOOKS

1. Organic Solid State Chemistry, edited by G. R. Desiraju, Studies in Organic Chemistry 32, Elsevier, Amsterdam, 1987: multi-author work with 16 chapters, 550 pages.
2. Crystal Engineering. The Design of Organic Solids by G. R. Desiraju, Materials Science Monographs 54, Elsevier, Amsterdam, 1989: 312 pages.
3. The Crystal as a Supramolecular Entity edited by G. R. Desiraju, Perspectives in Supramolecular Chemistry, 2, Wiley, Chichester, 1996: multi-author work with 6 chapters, 309 pages.
4. The Weak Hydrogen Bond in Structural Chemistry and Biology by G. R. Desiraju and T. Steiner, Oxford University Press, Oxford, 1999: 528 pages.
5. Crystal Design. Structure and Function edited by G. R. Desiraju, Perspectives in Supramolecular Chemistry, 7, Wiley, Chichester, 2003: multi-author work with 9 chapters, 408 pages.

### Scientific Literature Publications

1. Conversion in the solid state of the yellow to the red form of 2-(4-methoxyphenyl)-1,4-benzoquinone. X-ray crystal structures of the two forms and anisotropy of the rearrangement.  
G. R. Desiraju, I. C. Paul and D. Y. Curtin  
J. Am. Chem. Soc., 99, 1594-1601 (1977).
2. Crystal growth by non-aqueous gel diffusion.  
G. R. Desiraju, D. Y. Curtin and I. C. Paul  
J. Am. Chem. Soc., 99, 6148 (1977).
3. Synthesis and interconversion by hydrogen exchange of isomeric quinhydrone.  
G. R. Desiraju, D. Y. Curtin and I. C. Paul  
J. Org. Chem., 46, 4071-4075 (1977).
4. Resonance interactions in metal chelates of ortho-hydroxyazo compounds. Crystal growth, Structure and Spectra of 1-(2-Pyridylazo)-2-naphtholato-copper (II).  
G. R. Desiraju, H. R. Luss and D. L. Smith  
J. Am. Chem. Soc., 100, 6375-6382 (1978).
5. Structure studies of 1:1 quinone-hydroquinone complexes.  
G. R. Desiraju, I. C. Paul and D. Y. Curtin  
Mol. Cryst. Liq. Cryst., 52, 259-266 (1979).
6. Phase transition in malonic acid; an infrared study.  
S. Ganguly, J. R. Fernandes, G. R. Desiraju and C. N. R. Rao  
Chem. Phys. Lett., 69, 227-229 (1980).

7. Organic solid state chemistry-I. Topochemistry.  
G. R. Desiraju  
Indian J. Chem. Ed., 7(1), 1-8 (1980).
8. Organic solid state chemistry-II. Non-topochemical processes.  
G. R. Desiraju  
Indian J. Chem. Ed., 7(2), 1-6 (1980).
9. Phase transitions in solid hydrogen bonded p-chlorobenzamide, p-nitrophenol and an azo dye.  
S. Ganguly and G. R. Desiraju  
Indian J. Chem., 20A, 80-81 (1981).
10. Organic reactions in inorganic matrices-oxidation of hydroquinone to p-benzoquinone on solid MoO<sub>3</sub> surfaces.  
G. R. Desiraju and B. P. Shastry  
Proc. Indian Acad. Sci. (Chem. Sci.), 90, 243-246 (1981).
11. A mild transformation of g -FeOOH to g -Fe<sub>2</sub>O<sub>3</sub> using organic reagents.  
G. R. Desiraju and M. Rao  
Mat. Res. Bull., 17, 443-449 (1982).
12. 6-Chloro-4-phenyl-1-methyl-2,1,3-benzothiadiazine-2,2-dioxide.  
G. R. Desiraju and R. Kamala  
Acta Crystallogr., Section C, 39, 358-360 (1983).
13. Intermolecular proton transfers in the solid state: conversion of the hydroxyazo to the quinonehydrazone tautomer of 2-amino-3-hydroxy-6-phenylazopyridine. X-ray crystal structures of the two forms.  
G. R. Desiraju  
J. Chem. Soc., Perkin Transac. 2, 1025-1030 (1983).
14. Crystal engineering via donor-acceptor interactions. X-ray crystal structure and solid state reactivity of the 1:1 complex 3,4-dimethoxycinnamic acid-2,4-dinitrocinnamic acid.  
J. A. R. P. Sarma and G. R. Desiraju  
J. Chem. Soc., Chem. Commun., 45-46 (1983).
15. Structural mimicry and the photoreactivity of organic solids.  
W. Jones, C. R. Theocaris, J. M. Thomas and G. R. Desiraju  
J. Chem. Soc., Chem. Commun., 1443-1444 (1983).
16. Crystal engineering via non-bonded interactions involving oxygen. X-ray crystal structures of 3,4-methylenedioxycinnamic acid and 3,4-dimethoxycinnamic acid.  
G. R. Desiraju, R. Kamala, B. H. Kumari and J. A. R. P. Sarma  
J. Chem. Soc., Perkin Transac. 2, 181-189 (1984).
17. Crystal engineering via Cl????Cl non-bonded interactions. The novel 2:1 complex 6-chloro-3,4-methylenedioxycinnamic acid - 2,4-dichlorocinnamic acid. Topochemical conversion to an unsymmetrical cyclobutane and kinetics of the reaction.  
J. A. R. P. Sarma and G. R. Desiraju  
J. Chem. Soc., Chem. Commun., 145-147 (1984).
18. Organic solid state chemistry - some perspectives.  
G. R. Desiraju

Proc. Indian Acad. Sci. (Chem. Sci.), 93, 407-419 (1984).

19. An NMR method to distinguish between truxinic and truxillic dimers of some trans-cinnamic acids.  
J. A. R. P. Sarma and G. R. Desiraju  
Indian J. Chem., B23, 658-659 (1984).
20. The use of mixed crystals for engineering organic solid state reactions : applications to benzylbenzylidenecyclopentanones.  
C. R. Theocharis, G. R. Desiraju and W. Jones  
J. Am. Chem. Soc., 106, 3606-3609 (1984).
21. An investigation into the role of chloro-substituents in hydrogen bonded crystals: the crystal structures of the dichlorophenols.  
N. W. Thomas and G. R. Desiraju  
Chem. Phys. Lett., 110, 99-102 (1984).
22. Carrying out organic chemistry within crystalline solids  
G. R. Desiraju  
Endeavour, 8, 201-206 (1984).
23. Determination of an organic crystal structure with the aid of topochemical and related considerations: correlation of the molecular and crystal structures of a -benzylidene-g -butyrolactone and 2-benzylidenecyclopentanone with their solid state photoreactivity.  
S. K. Kearsley and G. R. Desiraju  
Proc. Roy. Soc. London Ser.A, 397, 157-181 (1985).
24. The chloro-substituent as a steering group : a comparative study of non-bonded interactions and hydrogen bonding in crystalline chloro-aromatics.  
J. A. R. P. Sarma and G. R. Desiraju  
Chem. Phys. Lett., 117, 160-164 (1985).
25. Organische Chemie in kristallinen Festk?rn.  
G. R. Desiraju  
Die Umschau, 413-417 (1985).
26. The novel 1:1 donor acceptor complex 3,4-dimethoxycinnamic acid - 2,4-dinitrocinnamic acid. Crystal engineering, structure and anomalous lack of solid state topochemical reactivity.  
J. A. R. P. Sarma and G. R. Desiraju  
J. Chem. Soc., Perkin Transac. 2, 1905-1912 (1985).
27. Some chemical implications of database derived crystallographic information.  
G. R. Desiraju  
Indian J. Chem., B25, 1-8 (1986).
28. What is the maximum yield in the solid state cinnamic acid dimerisation? A combinatorial mathematical approach.  
G. R. Desiraju and V. Kannan  
Proc. Indian Acad. Sci. (Chem. Sci.), 96, 351-362 (1986).
29. Crystal engineering and chemical reactivity of organic molecular solids.  
G. R. Desiraju

Proc. Indian Natl. Sci. Acad., 52A, 379-399 (1986).

30. The chloro-methyl exchange rule and its violations in the packing of organic molecular solids.  
G. R. Desiraju and J. A. R. P. Sarma  
Proc. Indian Acad. Sci. (Chem. Sci.), 96, 599-605 (1986).
31. Molecular discrimination in the formation of mixed crystals of some substituted chlorocinnamic acids.  
J. A. R. P. Sarma and G. R. Desiraju  
J. Am. Chem. Soc., 108, 2791-2793 (1986).
32. Recent studies on the formation and properties of quinhydrone complexes.  
A. O. Patil, W. T. Pennington, G. R. Desiraju, D. Y. Curtin and I. C. Paul,  
Mol. Cryst. Liq. Cryst., 134, 279-304 (1986).
33. The role of non-bonded interactions involving sulphur in the crystal engineering of 4- $\tilde{S}$  short axis structures. Unusual topochemical reactivity of 4-(4-chlorophenyl)thiazole-2(1H)-thione.  
V. Nalini and G. R. Desiraju  
J. Chem. Soc., Chem. Commun., 1030-1032 (1986).
34. The role of Cl????Cl and C- H????O interactions in the crystal engineering of 4- $\tilde{S}$ - short axis structures.  
J. A. R. P. Sarma and G. R. Desiraju  
Acc. Chem. Res., 19, 222-228 (1986).
35. Hydrogen bonding and phase transitions in pentachlorophenol - hexachlorobenzene solid solutions.  
Md. A. Masood and G. R. Desiraju  
Chem. Phys. Lett., 130, 199-202 (1986).
36. Dipole-dipole interactions and the inversion motif in the crystal structures of planar chloro aromatics: the unusual packings of 1,2,3-trichlorobenzene and 1,2,3,7,8,9-hexachlorodibenzo-p-dioxin.  
G. R. Desiraju, J. A. R. P. Sarma and T. S. R. Krishna  
Chem. Phys. Lett., 131, 124-128 (1986).
37. Interstack and intrastack forces in molecular solids: a new look at donor-acceptor complexes and organic metals.  
G. R. Desiraju  
Curr. Sci. (India), 55, 1009-1012 (1986).
38. Structure of 3-hydroxy-6-(4-methyl)phenylazopyridine.  
T. S. R. Krishna and G. R. Desiraju  
Acta Crystallogr., Section C, 42, 1246-1248 (1986).
39. Crystal engineering, X-ray crystallography and organic solid state chemistry  
G. R. Desiraju  
Indian J. Phys., 61A, 43-50 (1987).
40. The crystal and molecular structure of 3,4-dihydroxy-trans-cinnamic acid, C<sub>9</sub>H<sub>8</sub>O<sub>4</sub>, caffeic acid and its lack of solid state topochemical reactivity.  
S. Garcia-Granda, G. Beurskens, P. T. Beurskens, T. S. R. Krishna and G. R. Desiraju

Acta Crystallogr., Section C, 43, 683-685 (1987).

41. Crystal engineering through non-bonded contacts to sulphur. Structure and solid state photoreactivity of 4-(4'-chlorophenyl)-D-4-thiazolene-2-thione.  
V. Nalini and G. R. Desiraju  
Tetrahedron, 43, 1313-1320 (1987).
42. Gas-solid reaction of 4-phenylthiazole-2(1H)-thione.  
V. Nalini and G. R. Desiraju  
J. Chem. Soc., Chem. Commun. , 1046-1048 (1987).
43. Crystal engineering a 4- $\ddot{\text{u}}\text{short axis}$  for planar chloro aromatics:  
G. R. Desiraju in Organic Solid State Chemistry, Ed. G. R. Desiraju, Elsevier, Amsterdam (1987), pp 519-546.
44. Correlation between crystallographic and spectroscopic properties for C- H????O bonds in terminal acetylenes.  
G. R. Desiraju and B. N. Murty  
Chem. Phys. Lett., 139, 360-361 (1987).
45. Mixed crystals of 6-chloro-3,4-methylenedioxycinnamic acid with 2,4- and 3,4-dichlorocinnamic acids. Structure, topochemistry and intermolecular interactions.  
J. A. R. P. Sarma and G. R. Desiraju  
J. Chem. Soc., Perkin Transac. 2, 1187-1193 (1987).
46. C- H????O interactions and the adoption of 4- $\ddot{\text{u}}\text{short axis}$  structures by oxygenated aromatic compounds.  
J. A. R. P. Sarma and G. R. Desiraju  
J. Chem. Soc., Perkin Transac. 2, 1195-1202 (1987).
47. Designing organic crystals.  
G. R. Desiraju  
Prog. Solid State Chem., 17, 295-353 (1987).
48. Crystal engineering a solid state Diels-Alder reaction.  
K. V. R. Kishan and G. R. Desiraju  
J. Org. Chem., 52, 4640-4641 (1987)
49. Structure and photochemical reactivity of some chlorocinnamic acid molecular complexes.  
G. R. Desiraju  
Izv. Sib. Otd. Akad. Nauk SSSR, Ser. Khim. Nauk, 15-21 (1987).
50. Structure of (4 SR, 6a RS)-4-[2-methyl-1,3-dioxolan-2-yl)ethyl]-4,5,6,6a-tetrahydro-5,5,6a-trimethyl-2(1H)-pentalenone.  
V. Nalini and G. R. Desiraju  
Acta Crystallogr., Section C, 44, 510-512 (1988).
51. The crystal and molecular structures of 4-hydroxy-3-methoxycinnamic acid,  $\text{C}_{10}\text{H}_{10}\text{O}_4$ , ferulic acid.  
M. Nethaji, V. Pattabhi and G. R. Desiraju  
Acta Crystallogr., Section C, 44, 275-277 (1988).
52. Prediction of non-centrosymmetric packing for 1,3-disubstituted nitro aromatics. Crystal and molecular structure of 3-hydroxy- 6-(3-nitro)-phenylazopyridine.

G. R. Desiraju and T. S. R. Krishna  
Mol. Cryst. Liq. Cryst., 159, 277-287 (1988).

53. Non-centrosymmetry in organic crystals: a study of molecular conformation in some substituted tolans.  
G. R. Desiraju and T. S. R. Krishna  
J. Chem. Soc., Chem. Commun., 192-194 (1988).

54. A systematic analysis of packing energies and other packing parameters for fused-ring aromatic hydrocarbons.  
A. Gavezzotti and G. R. Desiraju  
Acta Crystallogr., Section B, 44, 427-434 (1988).

55. A convenient preparation of 2,5-dibenzylidenecyclopent-3-ene-1-ones.  
G. R. Desiraju and K. V. R. Kishan  
Indian J. Chem., B27, 953-954 (1988).

56. Distance dependence of C- H????O interactions in some chloroalkyl compounds.  
G. R. Desiraju  
J. Chem. Soc., Chem. Commun., 179-180 (1989).

57. From molecular to crystal structure: polynuclear aromatic hydrocarbons.  
G. R. Desiraju and A. Gavezzotti  
J. Chem. Soc., Chem. Commun., 621-623 (1989).

58. Structure of 4-phenylthiazole-2(1h)-thione and 4-chlorophenacyl disulphide, the product obtained on its gas-solid chlorination.  
V. Nalini and G. R. Desiraju  
Acta Crystallogr., Section C, 45, 1525-1527 (1989).

59. Tautomerism in the thiazole thiones. Crystal and molecular structure of 4-(3'-nitro)-phenylthiazole-2(1H)-thione.  
V. Nalini and G. R. Desiraju  
Acta Crystallogr., Section C, 45, 1528-1530 (1989).

60. Crystal chemistry of some alkoxyphenylpropionic acids. the role of oxygen and hydrogen atoms in determining stack structures of planar aromatic compounds.  
G. R. Desiraju and K. V. R. Kishan  
J. Am. Chem. Soc., 111, 4838-4843 (1989).

61. Crystal structure and solid state photoreactivity of 2,5-dibenzylidenecyclopent-3-ene-1-one and its tetrachloro derivative.  
G. R. Desiraju, J. Bernstein, K. V. R. Kishan and J. A. R. P. Sarma  
Tetrahedron Lett., 30, 3029-3032 (1989).

62. Crystal structures of polynuclear aromatic hydrocarbons. classification, rationalisation and prediction from molecular structure.  
G. R. Desiraju and A. Gavezzotti  
Acta Crystallogr., Section B, 45, 473-482 (1989).

63. Solid state dimerisation of  $\beta$ -nitrostyrene: a disordered photoreactive crystal.  
G. R. Desiraju and V. R. Pedireddi  
J. Chem. Soc., Chem. Commun., 1112-1113 (1989).

64. Cyano????halogen interactions and their role in the crystal structures of the 4-halobenzonitriles.  
G. R. Desiraju and R. L. Harlow  
*J. Am. Chem. Soc.*, 111, 6757-6764 (1989).

65. The nature of halogen????halogen interactions: are short halogen contacts due to specific attractive forces or due to close packing of non-spherical atoms?  
G. R. Desiraju and R. Parthasarathy  
*J. Am. Chem. Soc.*, 111, 8725-8726 (1989).

66. Clathrate compound of a new host material: 3-hydroxy-6-(4-nitro) phenylazopyridine.  
P. Ramachandra, T. S. R. Krishna and G. R. Desiraju  
*Proc. Indian Acad. Sci. (Chem. Sci.)*, 101, 329-334 (1989).

67. Strength and linearity of C- H????O bonds in molecular crystals: a database study of some terminal alkynes.  
G. R. Desiraju  
*J. Chem. Soc., Chem. Commun.*, 454-455 (1990).

68. Structure of L-lanthionine.  
G. R. Desiraju and D. R. Rao  
*Acta Crystallogr., Section C*, 46, 627-629 (1990).

69. Structure of perhydrotriphenylene.  
R. L. Harlow and G. R. Desiraju  
*Acta Crystallogr., Section C*, 46, 1054-1055 (1990).

70. Unexpected hydrogen bonding in the crystal structure of 4-chloro-phenylpropionic acid. The role of C- H????O hydrogen bonds in determining O- H????O networks.  
G. R. Desiraju, B. N. Murty and K. V. R. Kishan  
*Chem. Mater.*, 2, 447-449 (1990).

71. Organic compounds and materials science.  
G. R. Desiraju  
*Curr. Sci. (India)*, 59, 452-455 (1990).

72. Database analysis of crystal structure determining interactions involving sulphur. Implications for the design of organic metals.  
G. R. Desiraju and V. Nalini  
*J. Mater. Chem.*, 1, 201-203 (1991).

73. Hydration in organic crystals. prediction from molecular structure.  
G. R. Desiraju  
*J. Chem. Soc., Chem. Commun.*, 426-428 (1991).

74. Pseudo-inversion centres in the space group P and a redetermination of the crystal structure of 3,4-dimethoxycinnamic acid. a study of non-crystallographic symmetry.  
G. R. Desiraju, J. C. Calabrese and R. L. Harlow,  
*Acta Crystallogr., Section B*, 47, 77-86 (1991).

75. C- H????O hydrogen bonding and topochemistry in crystalline 3,5-dinitrocinnamic acid and its 1:1 donor-acceptor complex with 2,5-dimethoxycinnamic acid.  
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